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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/840,023	05/05/2004	Dennis P. Ward	10541-1997	9648

29074 7590 02/22/2008
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EXAMINER

KURR, JASON RICHARD

ART UNIT	PAPER NUMBER
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2615

MAIL DATE	DELIVERY MODE
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02/22/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.	Applicant(s)	
10/840,023	WARD ET AL.	
Examiner	Art Unit	
Jason R. Kurr	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 May 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 May 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 5/3/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8 and 10-23 rejected under 35 U.S.C. 103(a) as being unpatentable over Krochmal et al (US 6,577,737 B1) in view of Nakajima (US 6,779,826 B2).

With respect to claim 1, Krochmal discloses a system for detecting fault conditions in an audio system, the audio system including a remote audio generation device (fig.1 #17), an amplifier unit (fig.1 #11,14), the system comprising: an audio generation circuit (fig.1 #17); a switch (fig.1 #20) coupled to the audio generation circuit configured to selectively connect the audio generation circuit to the amplifier unit through the wire harness (col.3 ln.52-56); and a fault detection circuit (fig.1 #29) configured to monitor an audio output of the switch to detect fault conditions and provide a control signal to a control input of the switch to selectively disconnect the audio generation circuit from the wire harness (col.3 ln.26-37).

Krochmal does not disclose expressly wherein there is a wire harness connected between the audio generation device and the amplifier unit.

Nakajima discloses an audio system wherein a wire harness (fig.8 #5) is connected between an audio generation device (fig.8 #2) and amplifiers (not shown) to

output transducers. It is well known in the art that automotive audio systems contain such wiring harnesses to connect to audio generation devices. At the time of the invention it would have been obvious to a person of ordinary skill in the art to include a wiring harness in the automotive audio system of Krochmal. The motivation for doing so would have been to allow for easy installation of after-market audio generation devices.

With respect to claim 2, Krochmal discloses the system according to claim 1, wherein the fault detection circuit is configured to send a diagnostic signal to an audio system controller when a fault condition occurs (col.3 ln.26-37).

With respect to claim 3, Krochmal discloses the system according to claim 2, wherein the audio system controller stores the diagnostic signal in memory (col.2 ln.62-67, col.3 ln.1-13).

With respect to claim 4, Krochmal discloses the system according to claim 1, wherein the fault detection circuit is configured to generate the control signal if the audio output is above a threshold value (col.3 ln.26-37).

With respect to claim 5, Krochmal discloses the system according to claim 4, wherein the fault detection circuit includes a counter, and the fault detection circuit is configured to generate the control signal if the audio output exceeds the threshold for a predetermined number of samples (col.2 ln.62-67, col.3 ln.1-13).

With respect to claim 6, Krochmal discloses the system according to claim 1, wherein the fault detection circuit is configured to generate the control signal if the audio output is below a threshold value (col.3 ln.15-25).

With respect to claim 7, Krochmal discloses the system according to claim 6, wherein the fault detection circuit includes a counter, and the fault detection circuit is configured to generate the control signal if the audio output exceeds the threshold for a predetermined number of samples (col.2 ln.62-67, col.3 ln.1-13).

With respect to claim 8, Krochmal discloses the system according to claim 1, wherein the fault detection circuit is configured to average multiple samples to generate an average output and compare the average output to a threshold (col.3 ln.5-11).

With respect to claim 10, Krochmal discloses the system according to claim 1, however does not disclose expressly further comprising: a transistor coupled to the switch, the transistor being configured to simultaneously control multiple outputs of the switch simultaneously. Official Notice is taken that it is well known in the art that digital signal processors comprise many transistors that act as switches controlling signal paths from input to output. At the time of the invention it would have been obvious to a person of ordinary skill in the art that the DSP #20 of Krochmal is capable of having multiple signal inputs and outputs controlled by transistors. The motivation for controlling multiple signal paths would have been to protect multiple channels of an audio system by monitoring them simultaneously.

With respect to claim 11, Krochmal discloses the system according to claim 1, further comprising: a first capacitor (fig.1 "output of #28") in electrical series connection between the switch and the wire harness.

With respect to claim 12, Krochmal discloses the system according to claim 11, further comprising: a first resistor between the switch and a power source. Official

Notice is taken that it is well known in the art that DSP's may implement pull-up or pull-down logic wherein resistors are connected between input pins of the DSP and either a power source or ground. At the time of the invention it would have been obvious to a person of ordinary skill in the art to use such an arrangement in the invention of Krochmal. The motivation for doing so would have been to ensure that inputs to the logic system settles at an expected logic level if an external devices is disconnected.

With respect to claim 13, Krochmal discloses the system according to claim 12, further comprising: a second resistor (fig.1 #24) between the wire harness and the power source.

With respect to claim 14, Krochmal discloses the system according to claim 13, further comprising: a second capacitor (fig.1 "output of #28") between the wire harness and an electrical ground.

With respect to claim 15, Krochmal discloses the system according to claim 1, wherein the fault detection circuit is coupled to the audio outputs of the switch through the first capacitor (fig.1).

With respect to claim 16, Krochmal discloses a method for detecting fault conditions in an audio system, the audio system including a remote audio generation device (fig.1 #17), an amplifier unit (fig.1 #11,14), the method comprising: generating an audio signal using an audio generation circuit (fig.1 #17); selectively connecting the audio generation circuit to the amplifier unit using a switch (fig.1 #20, col.3 ln.52-56); and monitoring an audio output of the switch to detect fault conditions; and providing a

control signal to a control input of the switch to selectively disconnect the audio generation circuit from the wire harness (col.3 ln.26-37).

Krochmal does not disclose expressly wherein there is a wire harness connected between the audio generation device and the amplifier unit.

Nakajima discloses an audio system wherein a wire harness (fig.8 #5) is connected between an audio generation device (fig.8 #2) and amplifiers (not shown) to output transducers. It is well known in the art that automotive audio systems contain such wiring harnesses to connect to audio generation devices. At the time of the invention it would have been obvious to a person of ordinary skill in the art to include a wiring harness in the automotive audio system of Krochmal. The motivation for doing so would have been to allow for easy installation of after-market audio generation devices.

With respect to claim 17, Krochmal discloses the method according to claim 16, further comprising providing a diagnostic signal to an audio system controller when a fault condition occurs (col.3 ln.26-37).

With respect to claim 18, Krochmal discloses the method according to claim 17, further comprising storing the diagnostic signal in memory (col.2 ln.62-67, col.3 ln.1-13).

With respect to claim 19, Krochmal discloses the method according to claim 16, wherein the fault detection circuit is configured to generate the control signal if the audio output is above a threshold value (col.3 ln.26-37).

With respect to claim 20, Krochmal discloses the method according to claim 19, wherein the fault detection circuit includes a counter, and the fault detection circuit is

configured to generate the control signal if the audio output exceeds the threshold for a predetermined number of samples (col.2 ln.62-67, col.3 ln.1-13).

With respect to claim 21, Krochmal discloses the method according to claim 16 wherein the fault detection circuit is configured to generate the control signal if the audio output is below a threshold value (col.3 ln.15-25).

With respect to claim 22, Krochmal discloses the method according to claim 21, wherein the fault detection circuit includes a counter, and the fault detection circuit is configured to generate the control signal if the audio output exceeds the threshold for a predetermined number of samples (col.2 ln.62-67, col.3 ln.1-13).

With respect to claim 23, Krochmal discloses the method according to claim 16, wherein monitoring the audio output includes averaging multiple samples to generate an average output and comparing the average output to a threshold (col.3 ln.5-11).

Claims 9 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krochmal et al (US 6,577,737 B1) in view of Nakajima (US 6,779,826 B2) and in further view of Trump (US 4,301,330).

With respect to claim 9, Krochmal discloses the system according to claim 1, however does not disclose expressly wherein the fault detection circuit is configured to delay for a predetermined time period before sampling once a fault condition has occurred.

Trump discloses a loudspeaker protection circuit wherein a fault detection circuit (fig.1 #210,220,230) is configured to delay for a predetermined time period before

sampling once a fault condition has occurred (col.2 ln.65-68, col.3 ln.1-24). At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the delay of Trump in the fault detection of Krochmal. The motivation for doing so would have been to allow time for the amplifiers of Krochmal to stabilize as taught by Trump (col.3 ln.25-33).

With respect to claim 24, Krochmal discloses the method according to claim 16, however does not disclose expressly further comprising delaying for a predetermined time period before sampling once a fault condition has occurred.

Trump discloses a loudspeaker protection circuit wherein a fault detection circuit (fig.1 #210,220,230) is configured to delay for a predetermined time period before sampling once a fault condition has occurred (col.2 ln.65-68, col.3 ln.1-24). At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the delay of Trump in the fault detection of Krochmal. The motivation for doing so would have been to allow time for the amplifiers of Krochmal to stabilize as taught by Trump (col.3 ln.25-33).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

GrosJean (US 3,959,735) discloses a loudspeaker and amplifier protection circuit.

Short et al (US 4,538,296) discloses a sound inhibitor for audio transducers.


Morris, Jr. et al (US 5,224,169) disclose a protection arrangement for an audio output channel.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason R. Kurr whose telephone number is (571) 272-0552. The examiner can normally be reached on M-F 10:00am to 6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (571) 273-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JK
JK


VIVIAN CHIN
SUPERVISORY PATENT EXAMINER